

20-118-4-57/61

Certain Rules Holding in the Tillering in Perennial Loose-Tillered Cereals in Their First Year of Life and in the Subsequent Years, in Comparison to Related Annual Cereals

their place of origin: 1) those formed directly from the seed embryo, 2) those formed from the buds of the type 1 sprouts as long as those sprouts were in the vegetative (shortened) state or short sprouts which had been formed in the respective period, and 3) from buds of the lower knots of the elongated generative (probably also vegetative) stalks which usually begin to grow during the development of the seeds. The first two types are morphologically equal. For the sprouts of the second type the author keeps the term "tillering sprouts". The sprouts of the third type are formed at the perennial cereals after the harvest. So they are referred to as innovation sprouts. Thus all type 1 and type 2 sprouts are described as tillering knots, whilst those of the third type are described as innovation knots. According to the results given above and to the technical terms the total variety of the cereals investigated here can be summed up in three characteristic groups: I. Annual cereals. Every sprout can live for se-

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Certain Rules Holding in the Tillering in Perennial Loose-Tillered Cereals in Their First Year of Life and in the Subsequent Years, in Comparison to Related Annual Cereals

order. In the following year this knot is again replaced by the innovation knot of the second order, and so on. III. Perennial cereals the short sprouts of which can live for 1,5 - 3 years. These are: Cock's-foot grass, Bromus erectus, partly also Festuca elatior. The tillering knot does not quite die in the first year and works in the following year besides the innovation knot of the first order and in the year subsequent to that besides the innovation knot of the second order. So in one three-year old tillering, sprouts of three morphogenetic types can be found. There are 1 figure, and 8 references, 4 of which are Soviet..

PRESENTED: October 9, 1957, by A. L. Kursanov, Member of the AS USSR

SUBMITTED: June 17, 1957

AVAILABLE: Library of Congress

Card 5/5

The Relation Between the Activity of Organs of  
Vegetative Propagation in Perennial and Annual  
Cereals and the Process of Seed Formation

20-118-5-57/59

shoots, in cereals. The author carried out his work with  
hertaceous grasses (cereals). Perennial cultivated rye was  
chosen as representative of the perennial cereals. The annual  
cereals were represented by various sorts of rye, wheat, barley  
and oats. Moreover, an amphiploid hybrid (Nr 927) was included  
between the "Alabasskaya" winter wheat and the perennial Anato=  
lian rye (*Secale anatolicum*). In each of the incubators which  
contained 7 kg of soil 4 test and control plants were sown. The  
first were sterilized. Mainly the forming of new stems was recor=  
ded although also the dying of already formed stems was observed.  
The number of the living and the dead stems, which had formed  
after the forming of the ears, was recorded all phases of deve=  
lopment. For this purpose threads of different color were used.  
The dynamics of the formation and dying of the shoots are given  
in table 1. The analysis of data shows that 1) the steriliza=  
tion of the ears practically did not influence at all the for=  
ming of new shoots in the perennial sort. 2) In the case of  
annual control plants new shoots were either not formed at all,  
or if any, to an extremely limited number. In the case of the  
operated-on plants a considerable, although smaller number of

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The Relation Between the Activity of Organs of  
Vegetative Propagation in Perennial and Annual  
Cereals and the Process of Seed Formation

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sorts. In the case of the latter the innovation shoots  
(table 1) which had formed due to sterilization later de-  
veloped into reproductive elms of low growth with small ears.  
In some cases they also died without having formed new shoots  
so that the plant died. The contrary was the case with the  
perennial sorts. All these observations may open new ways for  
the selection of precious annual sorts.  
There are 1 table, and 10 references, 6 of which are Soviet.

ASSOCIATION: Stavropol'skiy sel'skokhozyaystvennyy institut  
(Agricultural Institute, Stavropol')

PRESENTED: September 9, 1957, by A. L. Kursanov, Academician.

SUBMITTED: June 17, 1957.

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KLOPOV, A.A.; SKRIPCHINSKIY, V.V.

Stavropol Botanical Garden. Biul. Glav. bot. sada no. 39:3-6 '60.  
(MIRA 14:5)

1. Stavropol'skiy botanicheskiy sad, Stavropol' Kavkazskiy.  
(Stavropol—Botanical gardens)

SKRIPCHINSKIY, V.V.

Biological foundations of the perennial characteristics of tillering  
gramineous plants. Biul.glav.bot.sada no.43:34-47 '61.  
(MIRA 15'2)

1. Stavropol'skiy botanicheskiy sad.  
(Hybridization, Vegetable) (Gramineae)

SKRIPCHINSKIY, VI.V.

Determination of plasmatic permeability as a method for the  
evaluation of frost resistance of potatoes. Bot. zhur. 48  
no.8:1168-1172 Ag '63. (MIRA 16:10)

1. Vsesoyuznyy institut rasteniyevodstva, Leningrad.  
(Protoplasm) (Plants—Frost resistance)  
(Potatoes)

SKRIPCHINSKIY, VI.V.

Seed germination of some wild ornamental plants under natural conditions. Biul. Glav. bot. sada no.50:78-82 '63. (MIRA 17:1)

1. Stavropol'skiy botanicheskiy sad Stavropol'skogo upravleniya lesnogo khozyaystva i okhrany lesa.



SKRIPCHINSKIY, V.V., doktor biolog.nauk; NATAL'IN, N.B., kand.sel'skokhoz.nauk

Raising rice. Priroda 53 no.1:20-28 '64.

(MIRA 17:2)

1. Stavropol'skiy botanicheskiy sad (for Skripchinskiy). 2. Kubanskaya  
risovaya opytnaya stantsiya (for Natal'in).

SEPUCHINSKIY, V.V.

Some problems of the theory of plant ontogeny. Biol. MCIP,  
Old. biol. 68 no.3(6):75 My-Ju '63. (MIRA 17:8)

DERIPCHINSKIY, V.V.; DERIPCHINSKIY, VI.V.; SHEVCHENKO, G.I.

Frost resistance of vegetative primordia of some geophytes  
of the Stavropol Territory flora. Biol. Glav. bot. sda  
no.55:109-114 '64. (MIRA 18:11)

1. Stavropol'skiy botanicheskiy sad.

SEKUCHENKO, A. I. 1965. *Trudy*, VI. 6.

Annual cycles of the morphogenesis of some species of Liliaceae  
of the steppe of the USSR and their significance for the theory  
of ontogeny. *Bull. MOIP. Ser. biol.* 70 no. 3:85-102 Ja-F '65.  
(MIRA 18:6)

SEN. KULIKOV, V.V.

Difference of opinion between L.V. Mikhailov and V.V. Kulikov on  
some basic problems of genetics. Biol. Zhurn. 63, 1978, 70  
no. 4: 106-116. 15 Ag '65. (MIRA 18:9)

SKRIPCHINSKIY, V.V.

Theory of phasic development and plant breeding. Genetika  
no.3:144-160 S '65. (MRA 18:12)

1. Stavropol'skiy nauchno-issledovatel'skiy institut sel'skogo  
khozyaystva. Submitted July 8, 1965.

1. Kasper. Mir. i anest. 9 no. 2: 74-80. 31-kg '64.

Novoraine action of reflexogenic zones in compound general anesthesia during obstetric and gynecological operations.

(MIRA 18:3)

1. Katedra anesteziya i ginekologii (zav. - chlen-korrespondent AN SSSR prof. L.S. Merzjaninov) II Moskovskogo medicinskogo instituta imeni Virgova.

SERIPCHUK, V.S.

Continuous steel casting at the Novo-Tul'skii Metallurgical Plant.  
Bul.tekh.-ekon.inform. no.4:11-13 '50. (MIRA 12:7)  
(Novo-Tul'skiy--Continuous casting)



10.5200

SOV 10 50-10-171

**AUTHORS:** Gurskiy, G. V., Kirillov, M. V., Korin, G. M.,  
Skrichuk, V. S.

**TITLE:** Comments on Recirculation Recuperative Steelmelting  
Furnace

**PERIODICAL:** Stal', 1959, Nr 10, pp 898-900 (USSR)

**ABSTRACT:** In comparing performance figures of a recirculation  
and an open-hearth furnace, as obtained by Glinkov,  
M. A., and Desin, G. I. (Stal', 1959, Nr 1), the  
authors point out that working conditions were not  
identical for both furnaces and consequently, re-  
sults are inadequate. Six years of tests revealed  
that recirculation recuperative furnaces are inferior  
in capacity and performance to standard open-hearth  
furnaces. There are 2 tables; and 1 Soviet reference.

Card 1/1

PASTUKHOV, A.I.; KLEYN, A.L.; ANDREYEV, T.V.; MAZUN, A.I.;  
Prinimali uchastiye: MARKIN, A.A.; SKRIPCHUK, V.S.; KHARITONOV,  
Yu.A.; SEL'YUTIN, N. P.; GAVRILOVA, Ye. A.  
GAVRILOVA, Ye.A.

Steelmaking from vanadium cast iron in converters with a top  
oxygen blow. Stal' 21 no.12:1070-1074 D '61. (MIRA 14:12)  
(Steel—Metallurgy)  
(Oxygen—Industrial applications)

REZNICHENKO, V.A.; SIDORENKO, G.D.; EPSHTEYN, Z.D.; MARKIN, A.A.;  
SKRIPCHUK, V.S.

Pilot plant investigation of the blowing of titanium-niobium  
cast iron. Titan i ego splavy no.8:72-85 '62. (MIRA 16:1)  
(Cast iron—Analysis) (Slag—Analysis)  
(Oxygen—Industrial applications)

MAZUROV, Ye.F.; GNUCHEV, S.M.; SKRIPCHUK, V.S.; MARKIN, A.A.; LYALIN, Ye.S.

Sponge iron used as a charge material. Metallurg 9 no.11:17-19  
N '64. (MIRA 18:2)

1. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy  
metallurgii imeni I.P.Bardina.

NAGORNYI, L.Ya.; PECHUK, V.I.; SKRIPCHUK, V.Yu.; TOPOLEV, V.P.

Methods for reducing the dynamic error of tensometric scales.  
Izm. tekhn. no.12:15-17 D '63. (MIRA 16:12)

SLIPIK, J.; DUTKO, P.

Influence of the shape of the experimental body on the shearing strength of the glued wood joints. p. 51. (DREVARNY VYSKUM, Vol. 1, No. 1/2, Oct 1956, Bratislava, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 12, Dec 1957. Uncl.

CZECHOSLOVAKIA/Chemical Technology - Chemical Products and  
Application. Synthetic Polymers. Plastics.

H-29

Abs Jour : Ref Zhur - Khimiya, No 8, 1958, 27034

Author : Lexa Jaroslav, Skripen Jan

Inst : -

Title : Effect of Low-Temperature Hardening on Bonding Strength  
of Phenol-Resorcinol-Formaldehyde Adhesives.

Orig Pub : Drevarsky vyskum, 1956, 1, No 1-2, 147-156

Abstract : The performed tests of wood (of conifers) bonded with  
phenol-resorcinol-formaldehyde adhesive FR-80 (I) at 5,  
10 and 15°, have shown that final bonding strength does  
not depend on temperature of hardening but is determined  
by shearing strength of the wood (which, in the conducted  
tests, was of approximately 67 kg/cm<sup>2</sup>). Determinations  
were made of the length of time during which the parts to  
be bonded should be maintained under pressure (to  
achieve a strength of 70% of ultimate):

Card 1/2

CONTROL, .

A competition on how technical literature on building helps workers. p.394.  
INZENERING STAVBY. (Ministersivo stavbaictvi) Praha. Vol. 4, no. 8,  
August 1956.

SCURTL: East European Accessions List, (EEAL), Library of Congress  
Vol. 5, no. 11, December 1956



SIMSON, A.E., kand.tekhn.nauk; NASYROV, R.A., kand.tekhn.nauk; SKRIPETS, N.F.,  
inzhener; FAVOROV, Yu.L., aspirant.

Dynamic characteristics of two-cycle diesel engines with diverging  
pistons. Vest.TSNII MPS 16 no.6:39-44 S '57. (MIRA 10:10)

1. Khar'kovskiy teplovozostroitel'nyy zavod im. V.A.Malysheva,  
Vsesoyuznyy nauchno-issledovatel'skiy institut zheleznodorozhnogo  
transporta i Khar'kovskiy institut inzhenerov zheleznodorozhnogo  
transporta im. S.M.Kirova.

(Diesel locomotives)

BALASH, R.; SKRIPETS, R. [Skrypets', R.], starshiy inzh.; TIMCHENKO, O.  
[Tymchenko, O.], tekhnik

Glazing bricks made of raw materials with a high moisture content.  
Sil'.bud. 11 no.6:20-21 Je '61. (MIRA 14:7)

1. Nachal'nik budivel'noi dil'nitsi Bilokurakins'koi mizhkolgospnoi  
budivel'noi organizatsii Lugans'koi oblasti (for Balash). 2. Viddil  
geologorozviduval'nikh robit i tekhdopomogi "Ukrsil'gosptekhniki"  
(for Skripets, Timchenko).

(Brickmaking)

SKRIPETS, V. [Skrypets', V.], inzh.

Let's observe exactly the techniques for vibrating brick.

Sil'. bud. 11 no.8:22-23 Ag '61.

(MIRA 14:9)

(Brick industry) (Vibrators)

SKRIPETS, V. [Skrypets', V.], inzh.

Heat blocking of kilns and driers. Sil'.bud. 13 no.5:14-15 My'63.  
(MIRA 17:3)

SKRIPIL', V.I.

Some problems relative to the genesis of the Gay copper pyrite  
deposit. Mat. po geol. i pol. iskop. IUzh. Urala no.2:76-80  
'60. (MIRA 14:3)

(Ural Mountains--Chalcopyrite)

SKRIPIL', V.I.; NEDOZHOGIN, M.S.; SIBIRSKAYA, N.A.

Basic geological characteristics of the Gay copper pyrite  
deposit in the Southern Urals. Mat. po geol. i pol. iskop.  
IUzh. Urala no.2:81-93 '60. (MIRA 14:3)  
(Ural Mountains—Geology)

SKRIPIL', V.I.; NEDOZHOGIN, M.S.

Geological and structural position of the Gay copper pyrite deposit.  
Razved. i'okh. nedr 26 no.4:5-10 Ap '60. (MIRA 15:7)

1. Gayskaya geologorazvedochnaya ekspeditsiya.  
(Gay Region (Orenburg Province)—Chalcopyrite)

SKRIPIL', V.I.

Structure of volcanic formations in the Gay ore province and  
distribution of pyrites in them. Geol. rud. mestorozh. no.1:  
80-91 Ja-F '61. (MIRA 14:4)

1. Kompleksnaya tematicheskaya ekspeditsiya Yuzhnoural'skogo  
geologicheskogo upravleniya, Ufa.  
(Magnitogorsk--Geology)



VODOREZOV, G.I.; DEMCHUK, A.I.; LAZAREV, P.V.; SKRIPIL', V.I.

Ivan Vasil'evich Lennykh; 1901-1961, obituary. Mat. po geol.  
i pol. iskop. IUzh. Urala no. 3:3-4 '62.

NOVIKOV, M.F.; SKRIPIL', V.I.

Yelenovskoye copper-molybdenum deposit. Mat. po geol. i pol.  
iskop. Uzh. Urala no. 3:178-179 '62. (MIRA 17:7)



KUZ'MIN, A.I.; SKRIPIN, G.V.

Correlation of semidiurnal variations in the intensity of the  
hard component of cosmic rays with semidiurnal fluctuations of  
barometric pressure. Trudy I Ak.fil. AN SSSR. Ser. fiz. no.1:  
23-26 '55. (MLRA 9:10)

(Cosmic rays) (Atmospheric pressure)

KUZ'MIN, A.I.; SERIPIN, G.V.

Monthly and semimonthly variations in the intensity of cosmic rays. Trudy I Ak.fil. AN SSSR. Ser. fiz. no.1:27-32 '55.

(MLRA 9:10)

(Cosmic rays)

SKRIPIN, G. V.  
USSR/Nuclear Physics - Cosmic rays fluctuation

FD-2207

Card 1/1      Pub. 146-12/25

Author : Kuz'min, A. I., and Skripin, G. V.

Title : Letter to the editor. Influence of lunar tidal fluctuations of the atmosphere upon the intensity of the hard component of cosmic rays

Periodical : Zhur. eksp. i teor. fiz. 28, 608-609, May 1955

Abstract : The authors state that a consideration of the influence of lunar tidal fluctuations in the atmosphere upon the intensity of the hard component of cosmic rays  $\delta I$  is of interest both for the study of the nature of the half-daily variations in the cosmic rays and for the study of the nature of the daily fluctuations of the temperature in the upper layers of the atmosphere (Ye. S. Selezneva, Izv. AN SSSR, ser. geogr., 9, 82, 1945). In connection with the fact that the period of the main lunar tidal fluctuation of the atmosphere equals one half of the lunar day (N. Ye. Kochin, Sobraniye sochineniy [Collected works], 1, 1949), they expect the appearances of the effect of the fluctuations in the regular half-daily variations in the intensity of cosmic rays, but that these regular variations can be masked by statistical fluctuations of the cosmic ray particles. They thank Professor Ye. L. Feynberg. Five References

Institution : Yakutsk Affiliate, Academy of Sciences USSR

Submitted : January 19, 1954

Category : USSR/Nuclear Physics - Cosmic rays

C-7

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 622

Author : Kuz'min, A.I., Skrypin, G.V., Tyanutova, G.V., Shafer, Yu.G.

Inst : Yukutsk Branch Acad. of Sciences USSR.

Title : Unique Flare of Intensity of Cosmic Rays.

Orig Pub : Dokl. AN SSSR, 1956, 108, No 1, 66-68

Abstract : Report on the results of measurements of intensities of cosmic rays during the time of the great flare of solar activity on 23 February 1956. The measurements were made in Yukutsk (elevation 101 meters, 51° northern latitude, 129° eastern longitude) with the aid of ionization chambers shielded with 12 cm of lead and aimed with a telescopic system made of Geiger-Mueller counters. The maximum by which the intensity exceeded the usual value occurred at 2.40 -- 4 hours Greenwich mean time and amounts to 165 -- 200%, depending on the type of recording apparatus. Apparatus recording extensive showers with a density of 25 and 50 particles per square meter did not detect any increase in intensity.

Card : 1/1

SKRIPIN, G.V.

Effect of radioactive emanations on the observable diurnal variations  
in the intensity of ionization produced by cosmic rays. Uch. zap.  
IAk. un. no.1:29-32 '57. (MIRA 11:3)  
(Cosmic rays)



89791

S/169/61/000/003/008/022

A005/A005

3.1800 (1041, 1062, 1178)

Translation from: Referativnyy zhurnal, Geofizika, 1961, No. 3, p. 10, # 3679

AUTHOR: Skripin, G. V.

TITLE: On the Star-Diurnal Variation of Intensity of the Stable Component of Cosmic Rays

PERIODICAL: "Nauchn. soobshch. Yakutskiy fil. Sibirsk. otd. AN SSSR", 1958, No. 1, pp. 72-74

TEXT: The star-diurnal variation is studied from data of continuous recording of the intensity of the stable component of cosmic rays at Yakutsk in 1954. It is shown that the observed star-diurnal variation with an amplitude of  $0.06 \pm 0.002\%$  and with a time of maximum at  $22.9 \pm 0.5$  o'clock of local star time occurs as a result of seasonal variations of the amplitude of the sun-diurnal variation. With respect to the distortion effect of the sun-diurnal variation, the star-diurnal variation of intensity of the stable component vanishes.

N. K.

Translator's note: This is the full translation of the original Russian abstract.

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SKRIPIN, G. V.

PHASE I BOOK EXPLOITATION 881

Akademiya nauk SSSR. Yakutskiy filial

Variatsii intensivnosti kosmicheskikh luchey (Variations of the Intensity of Cosmic Rays) Moscow, Izd-vo AN SSSR, 1958. 168 p. (Series: Its: Trudy, seriya fizicheskaya, vyp. 2) 1,500 copies printed.

Resp. Ed.: Shafer, Yu.G., Candidate of Physical and Mathematical Sciences; Ed. of Publishing House: Fradkin, M.I.; Tech. Ed.: Pavlovskiy, A.

PURPOSE: This collection of articles is for scientists and students of cosmic rays and meteorology.

COVERAGE: This issue contains articles on experimental methods in the continuous registration of cosmic rays, the investigation of meteorological effects of the different components of cosmic rays, and the connection between variations in cosmic ray intensity and solar and magnetic activity. Part I describes apparatus used in

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Variations of the Intensity of Cosmic Rays 881

measuring cosmic ray intensity on and under the earth's surface and in the upper layers of the atmosphere, and specifically discusses the ASK automatic ionization chamber. Part II discusses the theory, methods and results of the investigation of meteorological effects of the various components of cosmic rays. Part III discusses the characteristics of daily variations in cosmic ray activity. The following scientists are mentioned in the introduction: S.N.Vernov, Corresponding Member of the AS USSR, Professor Ye.L.Feynberg, and N.L.Grigorov, Doctor of Physical and Mathematical Sciences. The articles are accompanied by diagrams, tables, and bibliographic references.

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Koval'skaya, A.I. Problem of Seasonal Variability of the Barometric Coefficient of the Hard Component of Cosmic Rays 85

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PART III. NATURE OF VARIATIONS IN COSMIC RAY INTENSITY

Glokova, E.S., Kaminer, N.S., Mishina, N.A. Cyclic and Seasonal Variations of Diurnal Wave of Intensity of Cosmic Rays 95

Kuz'min, A.I., Skripin, G.V. Relation of the Diurnal Effect of Cosmic Ray Intensity to Geomagnetic and Solar Activity 107

Fuks, L.A., Shvartsman, B.F. Temperature Effect in Seasonal and Diurnal Variations of the Hard Component of Cosmic Rays From the Data Collected on Shmidt's Promontory Station 118

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SKRIPIN, G.V.

Diurnal variation in the intensity of the hard component of cosmic  
rays. Nauch. soob. IAFAN SSSR no.1:72-74 '58. (MIRA 17:1)

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SOV/169-59-4-4061

39000  
Translation from: Referativnyy zhurnal, Geofizika, 1959, Nr 4, p 126 (USSR)

AUTHORS: Sokolov, V.D., Skripin, G.V.

TITLE: In the Yakut Laboratory of Cosmic Radiation 12

PERIODICAL: Mezhdunar. geofiz. god. Inform. byul., 1958, Nr 5, pp 40 - 42

ABSTRACT: The collaboration of the Yakutskiy filial AN SSSR (Yakut Branch of the AS USSR) in the investigation of cosmic rays in accordance with the IGY program is described. The stations of the world-wide network were supplied with standard equipment of two types in accordance with recommendations of the Central Committee for the IGY: a telescope counter of charged particles and a neutron monitor. The observation of the cosmic radiation in the stratosphere permits the investigation of the stratosphere variations of cosmic rays, their variation with the altitude of the atmosphere, the connection between the variations in the stratosphere and the variations at great altitudes, and the obtaining of information on the transformation mechanism of primary particles in proportion to their penetration into the

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80404

In the Yakut Laboratory of Cosmic Radiation

SOV/169-59-4-4061

atmosphere. The equipment for stratosphere investigations comprises a telescope counter for measuring the intensity of the cosmic rays and a set for measuring the temperature and the pressure in the flight altitude. The equipment is carried to the stratosphere by sounding balloons. For investigating the intensity variations of cosmic rays beneath the earth's surface, a counter equipment of crossed telescopes has been developed, consisting of a device placed on the earth's surface and devices placed below the earth's surface in depths of 7, 20, and 60 m of water equivalent. The main purpose of this work is the investigation of the energy spectrum variation of the primary particles on the basis of the observations at various levels below the earth's surface, and the study of the alteration of the intensity variations of the  $\mu$ -meson component in dependence on the thickness variation of the absorber. The time frequency variations of extensive atmospheric showers of cosmic rays were also investigated in the range of the ultra-high energies ( $10^{13}$  -  $10^{17}$  ev), which has been studied relatively little. By means of a standard neutron monitor placed on the earth's surface, the intensity of the neutron component of the cosmic rays is recorded, which is most sensitive to variations in the low energy range of the primary spectrum.

Card 2/2

L.V. Terent'yeva

✓

29664

S/169/61/000/005/023/049

A005/A130

3,2410

AUTHORS: Danilov, A.A., Druzhinin, S.N., Kapustin, I.N., Skripin, G.V.

TITLE: A counter telescope for measuring the hard component of cosmic rays below the ground

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 5, 1961, 11, abstract 5 G 93. (Tr. Yakutsk. fil. AN SSSR. Ser. fiz., 1960, no. 3, 40-45)

TEXT: The authors describe the design of a cosmic ray counter telescope produced in Yakutsk. The telescope consists of three single blocks with a total area of about 0.9 m<sup>2</sup>. To increase the efficiency of the equipment, a quenching circuit is introduced, counter end effects are excluded and automatic control of the stability of the high voltage supplying the counters is effected. The telescope of triple coincidence, installed at a depth of 60 m of water equivalent, allows the recording of the hard component of cosmic rays with an accuracy of 1.4% per hour. The device has been in operation since February, 1958.

[Abstractor's note: Complete translation.]

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3,2410  
3,1800 (1041, 1046)

29671  
S/169/61/000/005/034/049  
A005/A130

AUTHORS: Kuz'min, A.I., Skripin, G.V.

TITLE: On the decrease effect of cosmic ray intensity during magnetic storms

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 5, 1961, 13, abstract 5 G 104. (Tr. Yakutskogo fil. AN SSSR. Ser. fiz., 1960, no. 3, 121-139)

TEXT: The authors investigated the upper limit and shape of the energy spectrum of primary particles of cosmic rays subjected to the action of the mechanism responsible for magnetic storms. For the analysis they used data obtained from continuous recording of intensity at Yakutsk by a neutron monitor, an ionization chamber and counter telescopes placed at depths of 0.7, 20 and 60 m of water equivalent. The data were corrected for the barometric and temperature effects. The presence of effects of intensity decrease at depths of up to 60 m w.e. shows that the mechanism which modifies cosmic ray intensity during magnetic storms affects particles with energies up to 400 Bev. This being the case, the energy

Card 1/2

DORMAN, L.I.; KUZ'MIN, A.I.; SKRIPIN, G.V.

Sounding electromagnetic conditions in the interplanetary space  
and in the vicinity of the earth by high-energy cosmic rays.  
Geomag. i aer. 1 no.3:333-345 My-Je '61. (MIRA 14:9)

1. Magnitnaya laboratoriya AN SSSR i Laboratoriya fizicheskikh  
problem Yakutskogo filiala Sibirskogo otdeleniya AN SSSR.  
(Cosmic rays)

S/C58/62/000/006/018/136  
A061/A101

A study of the...

er particles. The values of the barometric coefficient of different components are indicated, as well as the principal results of an investigation of 27-day and solar day variations of intensity. Phenomena observed during magnetic storms are briefly described. The interrelation factors between variations of intensity of primary and secondary cosmic ray components up to energies of  $\sim 700$  Bev are determined. These factors are utilized for the analysis of some types of variations of intensity. ✓

N. Kaminer

[Abstracter's note: Complete translation]

Card 2/2

3.2410 (2205, 2705, 2805)  
3.9120

31240  
S/169/62/000/004/075/103  
D218/D302

AUTHORS: Kuz'min, A.I., Danilov, A.A., Krymskiy, G.F., and  
Skripin, G.V.

TITLE: Energy characteristics of cosmic-ray variations  
during magnetic disturbances

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 4, 1962, 14, ab-  
stract 4G74 (V. sb. Kosmicheskiye luchy, no. 4, M.,  
AN SSSR, 1961, 16-24)

TEXT: The data obtained with a number of surface and underground  
instruments at Yakutsk are used to analyze the energy characteris-  
tics of cosmic-ray intensity variations during magnetic storms. It  
is shown that the intensity recovery period after the Forbush-effect  
minimum decreases with increasing depth of the recording device. For  
some Forbush-type reductions there is a noticeable North-South ani-  
sotropy in this effect. The method of coupling coefficients is used  
to determine the energy spectrum of the primary radiation during  
Forbush effects. Best agreement between experimental data and theo-  
retical predictions is obtained with the following primary differen-  
Card 1/2

Energy characteristics of ...

S/169/62/000/004/075/103  
D218/D302

tial spectrum

$$\frac{\delta D(\varepsilon)}{D(\varepsilon)} = -a \begin{cases} \varepsilon^{0.7} & \text{at } \varepsilon > \varepsilon_1 \\ 0 & \text{at } \varepsilon < \varepsilon_1 \end{cases}.$$

Further analysis shows that the effective width of the corpuscular stream should depend on the energy of the scattered particles. It is suggested that the regular field of the stream carries with it magnetic irregularities which give rise to scattering and diffusion of moderate-energy particles. The parameters of the streams, and the magnetic irregularities carried by them, are estimated. [Abstractor's note: Complete translation].

Card 2/2

37905

S/169/62/000/004/088/103  
D218/D302

3.2410 (2205, 2705, 2805)

AUTHOR: Skripin, G.V.

TITLE: On some properties of the solar-diurnal variation  
(based on directional underground measurements on  
cosmic-rays)

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 4, 1962, 16, ab-  
stract 4G87 (B sb. Kosmicheskiye luchy, no. 4, M.,  
AN SSSR, 1961, 229-236)

TEXT: A study is reported of the solar diurnal variation in the  
cosmic-ray intensity, based on experimental data obtained with di-  
rectional telescopes at depths of 7, 20 and 60 m at Yakutsk in 1958  
- 1959. It is shown that the phase difference between the southern  
and northern telescopes located on the earth's surface is also pre-  
sent in measurements with underground telescopes. The source of the  
diurnal variation lies at an angle of  $83^{\circ}$  east of the sun-earth li-  
ne in the plane of the exliptic. The energy spectrum of the diurnal  
variation is of the form

Card 1/2



On some properties of the ...

S/169/62/000/004/088/103  
D218/D302

$$\frac{\delta D(\varepsilon)}{D(\varepsilon)} = \begin{cases} -0.16 \varepsilon^{-1}, & (\varepsilon > 13 \text{ BeV}) \\ 0, & (\varepsilon < 13 \text{ BeV}). \end{cases}$$

X

Data on the anomalous characteristics of the solar-diurnal variation during the period of minimum solar activity (1954-1955) are given. [Abstractor's note: Complete translation].

Card 2/2

L2263

S/845/62/000/004/006/013  
E032/E314

3,2410 (2805)

AUTHORS: Kuz'min, A.I. and Skripin, G.V.

TITLE: Underground variations in the intensity of cosmic rays during 1957-1959

SOURCE: Akademiya nauk SSSR. Yakutskiy filial. Trudy. Seriya fizicheskaya. no. 4. 1962. Variatsii intensivnosti kosmicheskikh luchey, 66 - 82

TEXT: The intensity of the  $\mu$ -meson component was measured with a system of counter-telescopes at different depths below sea-level (7, 20 and 60 m of water equivalent). Variations in the intensity of the  $\mu$ -meson component at sea-level could be investigated with this apparatus for an energy range of  $2 \times 10^8$  to

$2 \times 10^{10}$  eV, which corresponded roughly to average primary-particle energies between 40 and 200-400 BeV. The vertical intensity in a solid angle of  $\pi$  and the intensity from the southern and northern directions at  $30^\circ$  to the zenith were recorded at each level with triple-coincidence telescopes. The accuracy was sufficient for the detection of fine effects provided the recording was extended over a period of some months or more. It was found that meteorological

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S/845/62/000/004/006/013  
EO32/E314

Underground variations .....

effects in the intensity of the hard component at sea-level and the above three depths were in agreement with the  $\mu$ -meson scheme for the generation of the hard component in the atmosphere, suggested by L.I. Dorman (Variatsii kosmicheskikh luchey (Variation in cosmic rays), Gostekhizdat, Moscow, 1957). The best agreement between experiment and theory is found to occur for the following values of the exponent  $\gamma$  in the effective integral  $\mu$ -meson spectrum:

sea level -	$\gamma = 0.5$
7 m w.e. -	$\gamma = 0.5$
20 m w.e. -	$\gamma = 0.8$
60 m w.e. -	$\gamma = 1.$

The meteorological effects at different depths below sea-level are in good agreement with Dorman's theory (mentioned above). This is confirmed by the fact that observed seasonal variations in the  $\mu$ -meson intensity at different depths and the expected changes due to temperature effects were identical to within experimental and computational error. Analysis of solar-diurnal variations at a fixed point again confirmed Dorman's theory of the modulation of

S/845/62/000/004/006/015  
E032/E314

Underground variations ....

the primary cosmic-ray intensity by the electric fields of solar corpuscular streams. The lower energy limit for particles modulated by these streams is 12 BeV and the effective source of these variations lies to the left of the Earth-Sun line at an angle of  $66 \pm 11^\circ$ . The ratio of the amplitudes of 27-day variations and the reduction in intensity during magnetic storms are the same within a wide primary-particle energy range ( $2 \times 10^9 - 4 \times 10^{11}$  eV) so that it is suggested that they are due to a common mechanism. The energy spectrum of primary variations is of the form:

$$\frac{\delta D(\epsilon)}{D(\epsilon)} = - \begin{matrix} b, & \epsilon < \epsilon_1 \\ a\epsilon^\alpha, & \epsilon > \epsilon_1 \end{matrix}$$

where  $\epsilon_1 = 7 \pm 2$  BeV,  $\alpha = -0.7 \pm 0.3$ ,  $a = 0.22$  and  $b = 0.11$  for the magnetic-storm effects and  $a = 0.06$ ,  $b = 0.03$  in the case of the 27-day variations. This spectrum is consistent with that expected on the Dorman theory due to the scattering of particles by the frozen-in magnetic field of a stream with an  
Card 3/4

Underground variations ....

S/845/62/000/004/006/015  
E032/E314

intensity of  $10^{-4}$  gauss at the Earth's orbit but appreciably disturbed by the interaction between the stream and the interplanetary medium. The considerable change in the energy spectrum of particles with  $\epsilon > 30$  BeV in the primary stream during magnetic storms suggests the presence of irregularities in the regular magnetic field of the stream and the importance of the influence of electric fields. There are 5 figures and 5 tables.

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5.

4226h  
S/845/62/000/004/007/013  
EO32/E314

3, 24/10 (2205)

AUTHOR: Skripin, G.V.

TITLE: Main properties of solar-diurnal variations according to directional cosmic-ray measurements

SOURCE: Akademiya nauk SSSR. Yakutskiy filial. Trudy. Seriya fizicheskaya. no. 4. 1962. Variatsii intensivnosti kosmicheskikh luchey, 83 - 90

TEXT: It is noted that there is a lack of information about the nature of the diurnal variations in the intensity of cosmic rays arriving from different directions with energies in excess of 20 BeV. It is also not clear to what extent the mechanism proposed by Dorman (Variatsii kosmicheskikh luchey (Variations in cosmic rays), Gostekhizdat, Moscow, 1957) explains the observed anisotropy in the high-energy range. The present paper reports the results of directional measurement of the diurnal variation obtained at Yakutsk at the Earth's surface and at 7, 20 and 60 m of water equivalent in 1958-1959. The measurements showed that the observed difference in the counting rates of telescopes pointing north and south of the zenith at the Earth's surface was

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X

S/845/62/000/004/007/013  
E032/E314

Main properties ....

also observed at the above three depths below it. This is interpreted as being due to the effect of the Earth's magnetic field on the trajectories of the incoming particles. Using these data, a determination was made of the direction of the source of diurnal variations in 1958-1959 which was found to lie at  $83 \pm 4^\circ$  to the Earth-Sun line in the plane of the ecliptic. A determination was also made of the strength distribution of the source of these diurnal variations in the plane perpendicular to the plane of the ecliptic. Finally, data are also reported for the intensity at 60 m water equivalent in Yakutsk during the 1954-1955 minimum. The apparatus employed has been described in previous papers (the author et al - Tr. YAFAN SSSR, ser. fizich., no. 2, 34, 1958; -do-, no. 3, 40, 1959). The energy spectrum of the diurnal variations was obtained with the aid of the data provided by a neutron monitor. The spectrum was found to be

$$\frac{\partial D(\epsilon)}{D(\epsilon)} = \begin{cases} -0.16 \cdot \epsilon^{-1} & \epsilon > 13 \text{ BeV} \\ 0, & \epsilon < 13 \text{ BeV} \end{cases} \quad (1).$$

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Main properties ...

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E032/E314

It is found that the effects due to the geomagnetic fields are sufficient to explain the differences in the phases of the diurnal variation of cosmic rays arising from different azimuths. Analysis of the diurnal variations during 1958-1959 showed that they exhibited no seasonal effects. This means that the source of the diurnal variation participates together with the Earth-Sun line in the annual revolution about the Sun and remains to the left of this line all the time. All these effects are found to be in agreement with the theoretical results of Dorman referred to above. According to Dorman's theory, solar-corpuscular streams carrying frozen-in regular magnetic fields are the sources of mean solar-diurnal variations and the present results form a new experimental confirmation of this theory in the high-energy range. Finally, a considerable change was found in the diurnal variation during the period of minimum solar activity (1958-1959) and this is ascribed to a reduction in the frequency of ejection of solar corpuscular streams and the return of a large number of such streams to the Sun. There are 3 figures and 3 tables. X

Card 3/3



12265

S/845/62/000/004/008/013  
E032/E314

3.2.110 (2805)

AUTHORS: Kuz'min, A.I. and Skripin, G.V.

TITLE: On some basic properties of disturbed diurnal variations in the intensity of cosmic rays

SOURCE: Akademiya nauk SSSR. Yakutskiy filial. Trudy. Seriya fizicheskaya. no. 4. 1962. Variatsii intensivnosti kosmicheskikh luchey, 91 - 102

TEXT: J. Sekido and S. Joshido (Rep. Ionos Res. Japan, 4, 37, 1950), and the present authors (Tr. YAFAN SSSR, ser. fizich., no. 2, 107, 1958) have found that there is an increase in the amplitude of the solar-diurnal variation and a shift of the maximum towards earlier hours during and after magnetic storms. According to the theory of Dorman (Variatsii kosmicheskikh luchey (Variation in cosmic rays), Gostekhizdat, Moscow, 1957), this is due to the fact that during such storms the Earth enters a corpuscular stream carrying a large frozen-in magnetic field. The source of the solar-diurnal variation is then displaced towards the Earth-Sun line and the amplitude of the variations increases with the energy of the recorded particles. This theory has not so far been satisfactorily verified. The aim of this work was to use the data obtained at Card 1/4.

S/845/62/000/004/008/013  
EO32/E314

On some basic properties ....

Yakutsk to determine the main properties of disturbed solar-diurnal variations and to compare Dorman's theory with experiment. The analysis is based on 1957-1959 observations with the apparatus described in an earlier paper (the present authors and A.V.Yarygin, Tr. YAFAN SSSR, ser. fizich., no. 2, 34, 1958). The apparatus consists of counter arrays and telescopes at the Earth surface and at 7, 20 and 60 m of water equivalent. All the data were corrected for meteorological effects. Magnetic data were taken from the publications of IZMIRAN. The analysis covers only those cases where the reduction in the measured  $\mu$ -meson intensity at the Earth surface was not less than 1%. These data show that magnetic disturbances are associated with considerable changes in the solar-diurnal variations of cosmic rays. The degree of disturbance in the amplitude and in the position of the maximum diurnal variations is greater at higher energies of the recorded particles. The maximum change in the diurnal variations during magnetic storms at all the four levels mentioned above was recorded by the telescope pointing in the direction parallel to the plane of the ecliptic and at  $30^\circ$  south of the zenith at a geographic latitude of  $60^\circ$ . It was found that the experimental data on the disturbed diurnal

S/845/62/000/004/008/013  
E052/E514

On some basic properties ....

variations during magnetic storms were consistent with a spectrum of the form

$$\frac{\delta D(\varepsilon)}{D(\varepsilon)} = \begin{cases} 0, & \varepsilon < \varepsilon_0 \\ ac^{-\alpha} & \varepsilon > \varepsilon_0 \end{cases} \quad (1)$$

where  $\alpha = -0.5$  and  $\varepsilon_0 = 10 - 15$  BeV. Moreover, the experimental data are also in agreement (to within experimental error) with the variation spectrum accepted in Dorman's theory

$$\frac{\delta D(\varepsilon)}{D(\varepsilon)} = \pm \frac{f}{\varepsilon} \begin{cases} 1, & \varepsilon > \frac{\varepsilon_1}{2} \\ 1 - \frac{2}{\pi} \sin^{-1} \left( \frac{\varepsilon_1}{2\varepsilon} - 1 \right), & \frac{\varepsilon_1}{4} < \varepsilon < \frac{\varepsilon_1}{2} \\ 0, & \varepsilon < \frac{\varepsilon_1}{4} \end{cases} \quad (2)$$

where  $f = 0.30$  and  $\varepsilon_1 = 80 - 100$  BeV. The source of these  
Card 3/4

On some basic properties ....

S/845/62/000/004/008/013  
E032/E314

variations is found to lie at  $35 \pm 5^\circ$  to the left of the Earth-Sun line. The source of diurnal variations during magnetic disturbances is associated with a mechanism whose position in space varies continuously. A large number of considerable disturbances in the solar-diurnal variation was noted during 1957-1959, during before and after magnetic storms. The general conclusion is that the main characteristics of disturbed diurnal variations are in good agreement with Dorman's theory, which explains them as the effect of the electric and magnetic fields of solar corpuscular streams reaching the Earth. There are 3 figures and 6 tables.

Card 4/4

42266  
S/845/62/000/004/009/013  
EO32/E314

3.7410 (22)

AUTHORS: Kuz'min, A.I. and Skripin, G.V.

TITLE: On the coefficient of absorption of cosmic rays which are responsible for solar-diurnal variation

SOURCE: Akademiya nauk SSSR. Yakutskiy filial. Trudy. Seriya fizicheskaya. no. 4. 1962. Variatsii intensivnosti kosmicheskikh luchey, 103 - 107

TEXT: Results of a comparison of diurnal variations in the  $\mu$ -meson component of cosmic rays at the Earth's surface with measurements obtained with similar apparatus under different absorbers are reported. The ACK-1 (ASK-1) and C-2 (S-2) ionization chambers (Yu.G. Shafer, Tr. YAFAN SSSR, ser. fizich., no. 2, 1, 1958) were employed. It was found that there were considerable differences in the amplitude of the diurnal variations in Moscow and in Yakutsk. It was established that these were not due to time variations or meteorological effects and the difference was therefore ascribed to a change in the primary radiation. If it is assumed that the diurnal variations are due to some localized source, it must also be assumed that the properties of this source are very dependent

Card 1/2

On the coefficient of ....

S/845/62/000/004/009/013  
E032/E314

on the level of solar activity and the dependence is such that during the years of minimum solar activity the solar-diurnal variations are due to particles of lower average energy than during the years of maximum solar activity. Simple numerical calculations show that the coefficient of absorption for the radiation responsible for diurnal variations is  $(0.5 \pm 0.1)\% \text{ cm}^2/\text{g}$  for 1954-1955. A similar estimate for 1956-1958 yields  $(0.23 \pm 0.5)\% \text{ cm}^2/\text{g}$ . It follows that  $\mu$ -mesons undergoing diurnal variations at minimum solar activity (1953-1955) have considerably larger absorption coefficients than during high solar activity (1956-1958). This difference in the absorption coefficients may be due to the following effects: 1) it is possible that in 1956-1958 the threshold energy for particles undergoing the diurnal variations was displaced towards higher energies so that the mean energy was appreciably increased; 2) the energy spectrum of the particles responsible for the diurnal variations in 1953-1955 was much softer than the particle spectrum responsible for the variations in 1956-1958 and 3) it is possible that both the above factors were operative at the same time. There are 1 figure and 2 tables.

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h2269

S/845/62/000/004/012/013  
EO32/E314

3.2410 (2405)

AUTHORS: Kuz'min, A.I. and Skripin, G.V.

TITLE: Electromagnetic conditions in the neighbourhood of the Earth on May 10 - 24, 1959

SOURCE: Akademiya nauk SSSR. Yakutskiy filial. Trudy. Seriya. fizicheskaya. no. 4. 1962. Variatsii intensivnosti kosmicheskikh luchey, 113 - 121

TEXT: The analysis now reported is based on experimental data obtained as a result of recording the meson component of cosmic rays with counter arrays at the Earth's surface and at 7, 20 and 60 m of water equivalent. The apparatus employed has been described by A.I. Kuz'min (Diss. NIYaF MGU, Moscow, 1960) and by the present authors (Tr. YaFAN SSSR, ser. fizich., no. 2, 195, 1958). The apparatus included a neutron monitor, ionisation chambers ACK-1 (ASK-1) and C-2 (S-2) and a vertical counter-telescope at the surface and vertical counter-telescopes at each of the above three depths. In addition, there were counter-telescopes pointing at 30° north and south of the zenith. Mean diurnal variations, corrected for barometric and temperature effects, were obtained for the cosmic-ray

Card 1/2

S/048/62/026/006/016/020  
B125/B102

AUTHORS: Kuz'min, A. I., Krymskiy, G. F., Skripin, G. V., Chirkov,  
N. P., Shafer, G. V., and Shafer, Yu. G.

TITLE: Some results of investigations relating to variations of  
cosmic rays

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26,  
no. 6, 1962, 808-817

TEXT: The main results gained in the Yakutskaya laboratoriya (Yakutsk  
Laboratory) concerning various meteorological effects and primary  
variations are here reviewed, covering papers published by Kuz'min et al.  
in Tr. Yakutskogo filiala AN SSSR. Ser. fiz., no. 5, 1962. There are  
12 figures and 1 table.

ASSOCIATION: Yakutskiy filial Sibirskogo otdeleniya Akademii nauk SSSR,  
Laboratoriya fizicheskikh problem (Yakutsk Branch of the  
Siberian Department of the Academy of Sciences USSR,  
Laboratory of Physical Problems)

Card 1/1



KUZ'MIN, A.I.; KRYMSKIY, G.F.; SKRIPIN, G.V.

Angular distribution of cosmic ray intensity below ground  
at depths equivalent to 0 to 60 meters of water. Trudy  
IAFAN SSSR. Ser. fiz. no.4:22-25 '62. (MIRA 15:12)  
(Cosmic rays)

KUZ'MIN, A.I.; SKRIPIN, G.V.

Variations in cosmic rays below ground during 1957-1959.  
Trudy IAFAN SSSR. Ser. fiz. no.4:66-82 '62. (MIRA 15:12)  
(Cosmic rays)

SKRIPIN, G.V.

Fundamental properties of solar diurnal variations according  
to data of selective cosmic ray measurements. Trudy IAFAN  
SSSR. Ser. fiz. no.4:83-90 '62. (MIRA 15:12)  
(Solar radiation)  
(Cosmic rays)

KUZ'MIN, A.I.; SKRIPIN, G.V.

Some principal properties of disturbed solar diurnal variations  
in cosmic ray intensity. Trudy IAFAN SSSR. Ser. fiz. no.4:91-102  
'62. (MIRA 15:12)

(Solar radiation)  
(Cosmic rays)

KUZ'MIN, A.I.; SKRIPIN, G.V.

Absorption coefficient of the intensity of cosmic rays  
responsible for solar diurnal variations. Trudy IAFAN  
SSSR. Ser. fiz. no.4:103-107 '62. (MIRA 15:12)  
(Cosmic rays)  
(Solar radiation)

KUZ'MIN, A.I.; SKRIPIN, G.V.

Electromagnetic conditions near the earth during the period  
May 10-24, 1959. Trudy IAFAN SSSR. Ser. fiz. no. 4:113-121  
'62. (MIRA 15:12)  
(Magnetic storms)

KUZ'MIN, A.I.; KUKLIN, G.V.; SERGEYEV, A.V.; SKRIPIN, G.V.; CHIRKOV, N.P.;  
SHAFFER, G.V.

Flare-up of cosmic ray intensity on May 4, 1960. Trudy  
IAFAN SSSR. Ser. fiz. no.4:132-137 '62. (MIRA 15:12)  
(Cosmic rays)

SKRIPIN, G.V.; SHAFER, G.V.

Some cases of a decrease in cosmic ray intensity. Trudy  
IAFAN SSSR, Ser. fiz. no.4:158-162 '62. (MIRA 15:12)  
(Cosmic rays)



KUZ'MIN, A.I.; SKRIPIN, G.V.; KRIVOSHAPKIN, P.A.; KRYMSKIY, G.F.

Energy spectrum of the diurnal variation of cosmic rays and  
the diurnal temperature fluctuations at an altitude from 20  
to 40 km. Geomag. i aer. 3 no.5:830-834 S-O '63.(MIRA 16:11)

1. Yakutskiy filial Sibirskogo otdeleniya AN SSSR.

L 38080-65 EWT(1)/EWT(m)/EWG(v)/FCC/EEC-1/EEC(t)/EMA(h) Po-4/Pa-5/Pq-4/Pas-2/Pab/  
 P1-4 AFFTC/AFHDC/ESD/RADC/DIAAP/APGC GW

ACCESSION NR: AT5006966

S/0000/64/000/000/0042/0047

56  
49  
B-11

AUTHOR: Skripin, G. V.

TITLE: Sidereal-diurnal cosmic ray variation in 1958-1960

SOURCE: AN SSSR. Yakutskiy filial. Institut kosmofizicheskikh issledovaniy i  
 aeronomii. Geo- i geliograficheskiye effekty v kosmicheskikh luchakh i polyarnykh  
 siyaniyakh (Geo- and heliophysical effects in cosmic rays and auroras). Moscow,  
 Izd-vo Nauka, 1964, 42-47

TOPIC TAGS: cosmic ray, cosmic ray variation, sidereal diurnal variation, meson,  
 Galaxy, solar system, solar activity

ABSTRACT: A study has been made to determine whether there were sidereal-diurnal  
 cosmic ray variations during the period of the last maximum in solar activity; data  
 for the 3-year period 1958-1960 were used (measurements of meson intensity at  
 Yakutsk). Records used were from crossed telescopes directed to the north and  
 south at an angle of 30° to the zenith; the telescopes were at the earth's surface  
 and underground at depths of 7, 20 and 60 m (water equivalent). Since spurious  
 sidereal-diurnal variations can appear due to phase and amplitude modulation of  
 solar-diurnal variations, the amplitude and phase modulations were considered both

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ACCESSION NR: AT5006966

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separately and when they operate jointly. It is concluded that when one or both kinds of modulation of the solar-diurnal variation exists there will be two fictitious variations: sidereal and "antisidereal". If an "antisidereal" wave is detected experimentally this will be an indication of the fictitious character of the sidereal-diurnal variation. It is shown that the sidereal wave can be found from the 2-hour mean monthly values of diurnal variation in intensity by successive displacement of the diurnal variation by two hours. By summing such deformed diurnal variations for one year it is possible to obtain the sidereal variation with the mean diurnal variation automatically excluded. A similar operation makes it possible to detect the "antisidereal" wave; in this case, the displacement of the mean monthly diurnal variation is in the direction of an earlier time. The mean 3-year diurnal variation in intensity was subjected to harmonic analysis and the amplitude and phase of the first harmonic determined. It was found that there was no "antisidereal" variation at depths of 20 and 60 m (water equivalent) when there was a sidereal wave with an amplitude of  $0.04 \pm 0.01\%$  at a depth of 20 m (water equivalent); this indicates the reality of a sidereal variation of primary particles with energies up to 200 Bev. At all levels, there was an identical tendency to a discrepancy between the phases of the sidereal wave according to the telescopes directed toward the north and south; the first usually show an earlier time of the maximum than the latter. In the "antisidereal" wave this tendency appears only at a depth of 7 m (water equivalent), indicating that

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ACCESSION NR: AT5006966

6  
if the sidereal wave was caused by any modulation with an annual period the source of this modulation lies beyond the earth's magnetic field. It is concluded that the source of the sidereal-diurnal variation is situated in the direction of the center of the Galaxy at a large angle to the equatorial plane and emits a quite rigid spectrum up to 200-400 Bev. It is concluded further that the source of sidereal-diurnal variation exists in both a period of minimum solar activity and a period of maximum activity. "In conclusion, the author wishes to thank A. I. Kuz'min, G. F. Krymskiy and G. V. Shafer for discussion of the results and valuable advice, as well as Ye. M. Orlova and L. P. Boltrushko for assistance in analyzing the experimental data". Orig. art. has: 7 formulas, and 1 figure.

ASSOCIATION: Institut kosmofizicheskikh issledovaniy i aeronomii, Yakutskiy filial, AN SSSR (Institute of Space Research and Aeronomy, Yakutsk branch, AN SSSR)

SUBMITTED: 23Oct64

ENCL: 00

SUB CODE: ES

NO REF SOV: 008

OTHER: 003

*me*  
Card 3/3

I 23401-65 EWT(1)/EWG(v)/FCC/EEC-l/EEC(t)/EWA(h) Po-l/Pe-5/Pq-l/Pae-2/Peb/Pi-l  
ACCESSION NR: AP5002101 GW/WS S/0048/64/028/012/1997/2000

AUTHOR: Kuz'min, A. I.; Krymskiy, G. F.; Krivoschapkin, P. A.;  
Skripin, G. V.; Chirkov, N. P.; Shafer, G. V.

TITLE: Modulation of <sup>γ</sup>cosmic rays by an <sup>γ</sup>interplanetary magnetic field <sup>B</sup>

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 28, no. 12,  
1964, 1997-2000

TOPIC TAGS: cosmic ray flux, chromospheric flare, magnetic field,  
terrestrial orbit, solar particle, Forbush decrease, galactic cosmic  
ray, exponential function, interplanetary magnetic field

ABSTRACT: The flux of cosmic rays depends upon the state of <sup>γ</sup>chro-  
mospheric flares. A reflecting magnetic field can exist inside or  
outside the terrestrial orbit; this field does not restrict the mo-  
tion of solar particles. The occurrence of cosmic rays during various  
phases of Forbush decreases indicates that solar cosmic rays can  
reach the earth freely. The Forbush effect is evident in a space  
which is separated from other space by an envelope. In this segre-

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23401-65  
ACCESSION NR: AP5002101

gated space, solar cosmic rays may move away from or toward the sun. This segregated space is characterized by a decrease of galactic cosmic rays. The energy spectrum of particle variations with an energy of more than 7 Bev is characterized by an exponential function with an exponent of -0.5 to -1.5. Variations with a maximum exponent are associated with the 11-year solar activity cycle. The degree of variation is greater in the polar regions than at middle latitudes. The delay in the Forbush decrease on the earth as compared with the solar chromospheric flares obtained by experiments indicates an expansion of the magnetic shell of the segregated space with a velocity of  $10^8$  cm sec<sup>-1</sup>. This expansion may be identified with the motion of the radial interplanetary magnetic field. The intensity of galactic cosmic rays is less in the vicinity of the solar system than in the free flux in the galaxy. An intensity gradient of cosmic rays must exist at the boundary between the solar system and the unperturbed galaxy. Orig. art. has: 1 figure, 1 table, and 4 formulas. [EG]

ASSOCIATION: Institut kosmofizicheskikh issledovaniy i aeronomii Yakutskogo filiala Sibirskogo otdeleniya Akademii nauk SSSR

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L 23401-65  
ACCESSION NR: AP5002101

(Institute of Space Physics Research and Aeronomy of the Yakutsk  
Branch of Siberian Division, Academy of Sciences, SSSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: AA

NO REF SOV: 008

OTHER: 004

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RUZ'NIN, A.I.; KUDSHIN, G.F.; SAMOILOV, G.V.

Energy and space characteristics of cosmic ray anisotropy.  
Izv. AN SSSR Ser. fiz. 28 no.12:2007-2008 D '64  
(MIRA 18:2)

1. Institut kosmofizicheskikh issledovaniy i aeronomii  
Yakutskogo filiala Sibirskogo otdeleniya AN SSSR.



ALIKOV, V. M.; FETISOV, A. I.; KROKHIN, G. A.; SHIBIKH, G. I.; LUKOV, N. P.

Pattern of the anisotropy of crystal rays. Izv. AN SSSR Ser.  
fiz. 28 no.11:2009-2011 D 164 (MIL 18:2)

Inst. fiz. matematicheskikh issledovaniy - aeronomii Yekaterinburga  
ul. Mira 311 rang. 60 deleniya AN SSSR.

L 1895-66 EWT(1)/FCC/EWA(h) GS/GW

ACCESSION NR: AT5022830

UR/0000/65/000/000/0170/0175

AUTHOR: Skripin, G. V.; Krymskiy, G. F.; Boltrushko, L. P.

TITLE: Contribution of solar particles to the diurnal variation of neutron intensity

SOURCE: Vsesoyuznoye soveshchaniye po kosmofizicheskomu napravleniyu issledovaniy kosmicheskikh luchey. 1st, Yakutsk, 1962. Kosmicheskiye luchy i problemy kosmofiziki (Cosmic rays and problems in cosmophysics); trudy soveshchaniya. Novosibirsk, Redizdat Sib. otd. AN SSSR, 1965, 170-175

TOPIC TAGS: solar corpuscular radiation, neutron radiation, solar flare, cosmic ray, diurnal variation

ABSTRACT: The neutron intensity data used in the analysis were obtained by three stations (Yakutsk, Resolute, Sulphur Mountain) during July 1957-1960. Small chromospheric flares on the western and eastern hemisphere of the sun were found to have no appreciable effect on the neutron intensity immediately after the flares, i.e., the effect of flares was absent irrespective of the local time and heliographic longitude. Because the flares on the sun followed a local-time pattern which the flare effect in the diurnal variation of cosmic rays on earth did not obey, it was concluded that during small chromospheric flares, solar

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ACCESSION NR: AT5022830

particles have no influence on the diurnal variations of neutron intensity. The disagreement between this conclusion and those of certain authors is explained in terms of differences in the techniques used for recording diurnal variations and omission of certain significant data. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: Institut kosmofizicheskikh issledovaniy i aeronomii YaF SO AN SSSR  
(Institute of Cosmic Physics Research and Aeronomy, YaF SO AN SSSR)

SUBMITTED: 29Oct64

ENCL: 00

SUB CODE: AA

NO REF SOV: 005

OTHER: 005

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L 1896-66 EWT(1)/FCC/EWA(h) GS/GW

ACCESSION NR: AT5022831

UR/0000/65/000/000/0180/0191

62  
61  
B41

AUTHOR: Skripin, G. V.

TITLE: Diurnal variations of cosmic ray intensity

SOURCE: Vsesoyuznoye soveshchaniye po kosmofizicheskoyu napravleniyu issledovaniy kosmicheskikh luchey. Ist. Yakutsk, 1962. Kosmicheskiye luchy i problemy kosmofiziki (Cosmic rays and problems in cosmophysics); trudy soveshchaniya. Novosibirsk, Redizdat Sib. otd. AN SSSR, 1965, 180-191

TOPIC TAGS: diurnal variation, cosmic ray anisotropy, cosmic ray intensity, earth magnetic field, interplanetary space, solar corpuscular radiation, galactic radiation, meson, neutron radiation

ABSTRACT: A survey of the work done in the last two to three years by Soviet and foreign scientists in the field of diurnal variations of cosmic ray intensity is given. It consists of three sections: (1) Diurnal variations and meteorological effects, (2) diurnal variations and Earth's magnetic field, and (3) diurnal variations and interplanetary space. On the basis of the experimental data cited, the following general pattern of the generation of these variations is drawn. Cosmic rays issuing from the galaxy enter the solar system

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ACCESSION NR: AT5022831

with an intensity constant in time and with some degree of anisotropy in space. This anisotropy is manifested as stellar-diurnal variation of about 0.1% for particles of less than 200 BEV with a maximum directed toward the center of the galaxy. In interplanetary space, cosmic rays interact with the magnetic fields of celestial bodies and with solar corpuscular streams, with which the effects of cosmic ray modulation including diurnal variations are apparently associated. The principal time-stable source of anisotropy is located in the ecliptic plane to the right of the Earth-sun line and participates in the revolution of the Earth around the sun. The properties of this source change in a period of 22 years and 27 days; and possibly also 2 years and 12-15 days. When corpuscular streams envelop the Earth, depending on the structure of the stream and its degree of interaction with the geomagnetic field, a whole series of sources of cosmic ray anisotropy arises. When the plasma of a corpuscular stream flows around the Earth's magnetic field, an unsymmetric cavity may be formed which may produce a local source of diurnal variations. Atmospheric effects contribute substantially to diurnal cosmic ray variations. Thus, many sources of variations exist whose sum total produces a complex picture. Orig. art. has: 3 figures.

ASSOCIATION: Institut kosmofizicheskikh issledovaniy i aeronomii Yakutskogo  
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ACCESSION NR: AT5022831

filiala SO AN SSSR (Institute of Cosmic Research Physics and Aeronomy, Yakutsk  
Branch, SO AN SSSR)

SUBMITTED: 29Oct64

ENCL: 00

SUB CODE: ES, AA

NO REF SOV: 027

OTHER: 030

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L 4510-66 EWT(1)/EWT(m)/FCC/I/EWA(h) IJP(c) GS/GW

ACCESSION NR: AT5022836

UR/0000/65/000/000/0239/0245

AUTHOR: Kuz'min, A. I. ; Krivoshekin, P. A. ; Krymskiya, G. F. ; Skripin, G. V. 36  
35  
34

TITLE: The study of upper atmosphere temperature variations from terrestrial measurements of cosmic rays

SOURCE: Vsesoyuznoye soveshchaniye po kosmofizicheskemu napravleniyu issledovaniy kosmicheskikh luchey. 1st, Yakutsk, 1962. Kosmicheskiye luchy i problemy kosmofiziki (Cosmic rays and problems in cosmophysics); trudy soveshchaniya. Novosibirsk, Redizdat Sib. otd. AN SSSR, 1965, 239-245

TOPIC TAGS: cosmic ray measurement<sup>12</sup>, atmospheric temperature<sup>12</sup>, cosmic ray intensity, upper atmosphere

ABSTRACT: Data concerning the dynamics of the mesosphere are necessary for the understanding of the coupling mechanism between the solar and terrestrial events and of the general circulation of the atmosphere. However, systematic data about atmospheric dynamics at altitudes between 20 and 80 km are practically nonexistent. The present article, consequently, gives results concerning the periodic temperature variations of the mesosphere as derived from the terrestrial measurements of cosmic rays at Yakutsk. The cosmic ray intensity was measured continuously over the 1959-1960 period at 30 and 60° from

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the zenith on the Earth's surface and underground at 20 and 60 m. w. equiv. (some data concerning daily variations are based on the 1958-1959 period). Experiments were carried out under the assumption that the variations in cosmic ray intensity at 60° and 20 (60) m. w. equiv. depths were caused by temperature variations of the atmosphere only. The analysis of data confirmed the accepted production mechanism for the hard cosmic ray component via intermediate nuclear-active mesons. Significant periodic changes in upper atmosphere temperature were found at the height of the ozone layer. These seasonal variations were between 35 and 50C, the 27-day variation amplitude was 5-10C, while daily variations were within the 3-7° limit. The yearly maximum appears in the fall, and the daily maximum during night hours. The observed temperature variations agree well with data from spectral observations of the night skies. The spectral results referring to altitudes of 80-120 km have amplitudes several times larger than the corresponding results for the 20-50 mb layer presented in this article. Orig. art. has: 2 formulas, 7 figures, and 2 tables.

ASSOCIATION: Institut kosmofizicheskikh issledovaniy i aeronomii YaF SO AN SSSR (Institute of Cosmic Physics Studies and Aeronomy, YaF SO AN SSSR)

SUBMITTED: 29Oct64

ENCL: 00

SUB CODE: ES, AA

NO REF SOV: 005

OTHER: 000

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Card 2/2



L 15936-66 EWT(1)/FCC/EWA(h) GW

ACC NR: AT6003523

SOURCE CODE: UR/3184/65/000/007/0018/0026

AUTHOR: Krymskiy, G. F.; Kuz'min, A. I.; Skripin, G. V.

50  
B

ORG: none

TITLE: Variations in cosmic rays and some characteristics of interplanetary space

SOURCE: AN SSSR. Mezhdovedomstvennyy geofizicheskiy komitet. Kosmicheskiye luchy, no. 7, 1965, 18-26

TOPIC TAGS: cosmic ray, diurnal variation, magnetic field, cosmic ray anisotropy

ABSTRACT: The principal characteristics of variations in primary cosmic rays are studied on the basis of IGY-IGC-59 materials. The effect of the interplanetary radial magnetic field on the diffusion of solar cosmic rays is discussed together with the propagation of cosmic rays in magnetic traps and the Forbush decrease. The anisotropy of cosmic rays in the interplanetary magnetic field revealed by the 11-year cosmic ray cycle is analyzed. The results of this study are used as a basis for constructing a model of the interplanetary magnetic field and for determining its basic parameters. A diagram is given showing the lines of magnetic force for

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ACC NR: AT6003523

the interplanetary field and the direction of the density gradient for the cosmic rays as well as the direction for the vector of anisotropy. The properties of bursts of cosmic rays and diurnal variations show that this is a radial field resembling the solar dipole field intensely prolate in the equatorial plane with a magnetic moment having the same direction as on the earth. Analysis of experimental data indicates that this interplanetary magnetic field should have a field intensity of approximately  $6\gamma$  on the orbit of the earth. An examination of Forbush effects and the bursts of cosmic and subcosmic rays which accompany them indicates that there are magnetic traps expanding outward from the sun in which the cosmic rays are effectively retarded. There may be a considerable gradient in the cosmic rays in a direction perpendicular to the plane of the ecliptic. Orig. art. has: 2 figures, 2 tables, 10 formulas.

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L 11772-66 EMT(1)/EMT(m)/EGG/T/ENA(h) LIP(c) GE

ACC NR: AT6003527

SOURCE CODE: UR/3184/65/000/007/0135/0139

AUTHOR: Chirkov, N.P.; Krymskiy, G.F.; Kus'min, A.I.; Skripin, G. V. 37

ORG: none 6-1

TITLE: Variations of cosmic rays and oscillations of the magnetosphere 19.45

SOURCE: AN SSSR. Mezhdudomstvennyy geofizicheskiy komitet. Kosmicheskiye luchy, no. 7, 1965, 135-139

TOPIC TAGS: galactic cosmic ray, magnetic storm, geomagnetic threshold, Forbush decrease, lunar diurnal variation, energy spectrum

ABSTRACT: Some difficulties occur in investigating geomagnetic changes in galactic cosmic rays. The intensity of cosmic rays is subject to great fluctuations of sudden commencement during strong magnetic storms. The spectrum of galactic particles is only slightly sensitive to changes of geomagnetic thresholds compared to solar particles, and the spectrum becomes harder during the Forbush decrease. These phenomena indicate that the increase of cosmic-ray intensity occurs isotropically and anisotropically, and its maximum amplitude is found at middle latitudes. This period is associated with weak geomagnetic disturbances. Statistical data prove that the change of cosmic-ray intensity during the Forbush decrease occurs with the same probability at both high and low latitudes. This fact contradicts the assumption that the increase depends only upon the magnetic thresholds. The problem of the 19.45-50

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lunar diurnal variations is also unresolved because these variations do not have a tidal origin. They indicate a 27-day modulation of solar diurnal variations. The conclusion may be drawn that the magnetosphere plays a small role in variations of galactic cosmic rays, but its influence is significant for solar cosmic rays with soft energy spectrum. Orig. art. has: 5 figures and 1 table. [EG]

SUB CODE: 03/ SUBM DATE: none/ ORIG REF: 011/ OTH REF: 007/ ATD PRESS 4178

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